

Frank -
This is the only
one in my file.
Glen

Frank Lalas 4-3319
Checklist by Jan 16

12-15-98

GUIDELINES FOR ESTABLISHING A BUILDING ENERGY MONITOR PROGRAM

It very difficult for the energy manager alone to develop and implement a successful Energy Conservation Program. A Building Energy Monitor Program can help an energy manager implement an Energy Conservation Program throughout an entire activity.

A Building Energy Monitor is an individual who is responsible for achieving the goals of the Energy Program within their designated building. Through these individuals, an energy manager can realistically reach all employees and establish a well rooted energy conservation program.

Purpose of a Building Energy Monitor Program

A Building Energy Monitor Program is designed to task individuals throughout the activity to be the energy conservation communicators, leaders, and motivators of fellow employees within their buildings. The BEM Program is a vehicle through which to reach all personnel.

The primary responsibility of a BEM is to assist the energy manager in achieving the objectives of the activity Energy Conservation Program. It is recommended that the energy manager develop the Building Energy Monitor Program with the Energy Management Team. This will lessen the work load on the energy manager, incorporate views from various functions, and allow for increased team development. Specifically, BEM responsibilities are to:

- Communicate installation energy goals and objectives.
- Promote and increase energy awareness on the usage and cost of energy in the building.
- Serve as the point of contact for energy issues, problems, and costs.
- Recommend energy saving changes to the building's operating procedures.

- Generate work orders for low cost maintenance and energy efficiency projects.
- Monitor the operation of the building through periodic energy audits.
- Recommend energy efficiency projects for the building.

The success of a BEM Program requires up-front planning and development prior to implementation. The initial development effort may be time consuming, however, the long-term payback of a well-planned program is well worth the invested time.

Command Support

Due to limited staff and authority of the energy manager, support at a high level is crucial. A signed instruction or directive from the Commander/Commanding Officer is the foundation to any successful program. Support of the Energy Conservation Program by the Commander ensures that the Building Energy Monitor Program and the energy manager receive proper attention from the entire activity. If direct command support is not possible, then the Energy Conservation Program must be backed by the Public Works Officer and the Energy Management Team in order to achieve its objectives.

Ideally, the energy manager will already have the Commander's support for the entire Energy Conservation Program prior to developing the BEM Program. However, if the energy manager is still lobbying for support of the Energy Program, the BEM Program can be a strong bargaining chip in receiving that support from the Commander. In order to cultivate command support, the Commander and Energy Management Team should be periodically updated on the status and progress of the BEM Program once it is implemented.

Mission Development

The BEM Program mission is to help the activity energy manager achieve the objective of an energy efficient activity without adversely impacting the mission or quality of life. The mission should be clearly stated with realistic objectives and goals since it will provide common ground for all BEMs and ensure consistency of the Energy Program throughout the activity. The mission may coincide directly with that of the Energy Program. Most importantly it should not conflict or interfere with the overall mission of the activity.

Once the mission and guidelines are established, they should be reviewed and approved by the Commander/Commanding Officer and the Energy Management Team prior to implementation. This will ensure, and perhaps inspire, active participation in the BEM Program.

Guidelines Development

Often, designated BEMs have little or no experience with energy management, therefore, it is very important to establish guidelines for them to follow. A short BEM Handbook should be developed to detail the responsibilities of a BEM and to provide the general energy conservation information necessary to perform those responsibilities. The desired responsibilities of a BEM should be detailed by the energy manager and the Energy Management Team in order to meet the specific objectives of your Energy Conservation Program. Typical responsibilities include those outlined in the section above entitled, *Purpose of a Building Energy Monitor Program*.

The general energy conservation information covered in the guidelines is also a function of the activity itself, but usually includes:

- Energy consuming equipment in the buildings and their interactions with each other,
- Several ways that energy can be saved through the modified operation of the equipment, and
- Implementation of energy efficiency projects.

Typical topics covered in the guidelines on general energy conservation information are:

- Heating, ventilating, and air-conditioning,
- Hot water systems or water systems in general,
- Lighting,
- Special processes, such as laundry, manufacturing, cleaning, computer, kitchen, etc., and
- Energy awareness.

Checklist Development

The energy manager or Energy Management Team must develop a generic checklist to be used for the energy audits. The BEMs should use this checklist and tailor it to specific facilities, as the processes and equipment within buildings vary. If a competition is going to be developed, the checklists must be detailed by the energy manager or Energy Management Team to maintain a consistent set of goals and measurements.

Otherwise, it is best to empower the BEM to design the checklist and have it reviewed by the energy manager or Energy Management Team.

The following sample checklist was developed by the Puget Sound Naval Shipyard in Bremerton, Washington. This checklist uses a yes/no rating and includes a corrective action section. When energy waste is found, it should not only be documented, but it should also be corrected.

Another option for the ratings of specific checkpoints is a graduated scale. For example, a score of 1 would represent no energy conservation efforts, a 2 would represent some effort, and a 3 would represent full compliance. There are many ways to rate the energy audit checkpoints. The energy manager and energy management team should discuss the most effective means of rating for the specific installation and the overall objective of the energy audit.

Designation of Building Energy Monitors

A Building Energy Monitor needs to be designated for each building at the activity. In some cases, more than one BEM may be needed for very large buildings, buildings with multiple tenants, or merely as a backup. For a building with multiple BEMs, a floor plan should be used to outline each BEM's area. This will ensure that the entire building is covered and that there is no overlap.

It is suggested that volunteers should first be recruited for the BEM position. Typically anyone volunteering for the position has a specific interest in energy conservation and will tend to be more successful and conscientious. Otherwise, BEMs may be chosen by the Commander, Public Works Officer, Energy Conservation Board, energy manager, or the Energy Management Team as a whole. Typically the facility manager is a good choice for the BEM due to their in-depth knowledge of the building and its operation. If the facility manager is unable to perform the task, he/she should be able to identify qualified candidates.

With proper training most individuals with initiative and dedication will make successful BEMs. The following list portrays desired characteristics of a BEM. However, it may be difficult to find an individual that meets each characteristic.

- Strong knowledge of building layout, equipment, and operation;
- Good working relationship with operations and maintenance personnel;
- Knowledge of energy conservation opportunities;
- Desire to contribute to installation energy conservation program;
- Willingness to contribute own time to the program; and
- Initiative to develop corrective action plans and follow-through on those plans.

Training Building Energy Monitors

Even an individual who meets all of the above characteristics must be trained to be a BEM. After all of the BEMs are designated, hold a kick-off meeting or initial training workshop. Depending upon the qualifications of the identified BEMs, you may decide to hold a more in-depth training workshop later for those who need additional energy conservation training.

The kick-off meeting or initial training workshop should introduce the BEMs to the mission of the Energy Conservation Program and BEM Program, and should cover the expectations and responsibilities of a BEM. The guidelines that were developed by the energy manager or the Energy Management Team should be reviewed in detail at this meeting and the BEM Handbook should be distributed. The separate, more in-depth training workshop should cover the fundamentals of energy conservation. General topics for each meeting are listed below.

Kick-off meeting discussion topics:

- Energy conservation mission;
- Roles and responsibilities of energy manager, Energy Conservation Board, Energy management Team, and BEM;
- Procedure to report energy problems or issues;
- How to perform energy audits;
- How to tailor the energy checklist to the building; and
- How to promote energy awareness.

Energy conservation training workshop topics:

- Descriptions of building operating equipment;
- Operations and maintenance for energy efficiency;
- Lighting;
- Building envelope;
- Specific energy conservation opportunities for each topic;

- Methods of developing energy awareness among the building occupants;
- Energy reporting procedures; and
- Interpretation of energy consumption data.

A BEM Program commonly includes an energy audit that may be performed weekly, semi-monthly, or monthly. The energy audit is a motivational tool used to obtain compliance with the energy conservation standards set by your Energy Program and its mission. The energy manager or a designated individual should gather the results, compile them, and report them to the Energy Management Team or the Commander. This type of visibility will motivate the BEMs to improve their energy audit results. The energy manager or Energy Management Team should also consider developing the energy audits into a competition in which the best performers are rewarded. Competitions go far toward encouraging participation in the Energy Program.

Periodic Meetings

Energy managers must have periodic meetings with BEMs to provide any new information about the BEM Program or Energy Program, supply updates on energy consumption and energy audit results, review success stories in specific buildings, and provide guidance to BEMs on specific questions and issues. These meetings also are a good opportunity for the BEMs to share best practices among themselves. This type of open discussion often leads to new ideas and approaches to energy conservation.

The energy manager or Energy Management Team may decide to make this a monthly or quarterly meeting and have a BEM of the Month (or Quarter) Award. This type of recognition helps to keep the BEMs motivated and interested. An invitation for the recognized BEM to the next Energy Management Team meeting or Commander update meeting would also be a strong motivation tool and reward.